ORDER 1050.19

ENVIRONMENTAL DUE DILIGENCE AUDITS IN THE CONDUCT OF FAA REAL PROPERTY TRANSACTIONS

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

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Initiated By: AEE-20

FOREWORD

Consistent with the Federal Aviation Administration's mission to be the national and international leader in aviation environmental issues, while fostering a safe, secure, and efficient aviation system, is the need for an effective process to acquire real property free from environmental liabilities. The Environmental Due Diligence Audit (EDDA) program provides a comprehensive framework for ensuring that the FAA adheres to all applicable environmental regulations and best practices associated with property acquisitions and disposals while maintaining the necessary infrastructure to promote aviation safety and growth.

This order prescribes policy, delegates authority, and assigns responsibility for ensuring agency compliance with the provisions of the EDDA program. It also directs the Office of Environment and Energy to issue necessary guidelines and procedures needed to manage the program.

This order provides personnel involved in the transfer of real property with direction for the conduct, management. and oversight of EDDA's. This order also provides direction on the preparation and review of EDDA reports, including results interpretation. Each office may supplement this broad coverage with guidelines, instructions, or protocol specific to its needs.

Due to the evolving and dynamic nature of EDDA practices, the EDDA order cannot remain static. Recognizing that program improvement is a vital element in the program's effectiveness and responsiveness to FAA personnel, users have the opportunity to offer suggestions for improvement to this directive through the use of FAA Form 1320-19, Directives Feedback Information.

/s/ David R. Hinson
David R Hinson
Administrator

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CHAPTER 1. GENERAL REQUIREMENTS

1. PURPOSE. This order establishes the Federal Aviation Administration (FAA) policy, procedures and responsibilities, and implementation guidelines for performing environmental due diligence audits (EDDA) in the acquisition and disposal of real property. The intent of this order is to minimize the FAA's environmental liabilities described in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

2. DISTRIBUTION. This order is distributed to the division level in Washington, with a branch level distribution in the Offices of the Chief Counsel, Budget, Training and Higher Education, and Airport Planning and Programming; NAS Transition and Implementation Service; to the division level in the regions, with a branch level distribution in the Airway Facilities and Logistics Division; to the office level at the Aeronautical Center and division level at the FAA Technical Center; and a limited distribution to all Airway Facilities Sector Offices and Airports District Offices.

3. DEFINITIONS.

a. Aboveground Storage Tank (AST): Aboveground storage tanks (ASTs) include all tanks not classified as underground storage tanks; i.e., tanks and associated piping that are more than 90 percent, by volume, above ground.

b. Action Level: The quantity of contamination necessary before further study, containment, cleanup, or other action is initiated. The action level is determined by several factors. including cost, available technology, and potential effects.

c. Applicable or Relevant and Appropriate Requirements (ARAR): ARAR's are defined as follows:

(1) Applicable Requirements: Those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site.

(2) Relevant and Appropriate Requirements: Those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a Comprehensive Environmental Response Compensation and Liability Act (CERCLA) site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site.

d. Asbestos Hazard Emergency Response Act (AHERA): Among other things, the Act and implementing regulations provide requirements for accreditation of persons who inspect for asbestos, develop management plans, and design, supervise, or conduct response actions.

e. Carcinogen: A substance or condition which increases the incidence of generally irreversible benign or malignant tumors, reduces the latency period, or produces unusual tumors in animals or humans.

f. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Provides funding and enforcement authority for cleaning up the thousands of hazardous waste sites created in the United States in the past and for responding to hazardous substance spills, and imposes strict, joint and several liability for environmental damage upon property owners and operators. The Act provides a limited defense for innocent landowners. (See 3(n) below)

g. Conversion: The acquisition (e.g., purchase) of property currently leased by the FAA.

h. Environmental Due Diligence Audit (EDDA) Program: A systematic program for conducting investigations of real property transfers. The purpose of the EDDA program is to help minimize environmental-related liabilities associated with such transfers.

i. Exposure Assessment: The determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of exposure.

j. Feasibility Study (FS): An analysis of remedial alternatives based on nine evaluation criteria as outlined in the National Oil and Hazardous Substances Contingency Plan (NCP).

k. Federal Real Property Transfer Regulation (40 CFR 373): The regulation that requires any department, agency, or instrumentality of the United States that wishes to transfer real property owned by the United States, where hazardous substances were stored for 1 year or more and known to have been released, or disposed of, to include in the contract, notice of the type and quantity of hazardous substance and notice of the time when storage, release, or disposal took place, to the extent such information is available from a complete search of the agency files. Quantities stored must have been in excess of 1000 kg or the CERCLA reportable quantity (RQ) (40 CFR 302.4), whichever is greater. Acutely hazardous substances (40 CFR 30) must have been stored for 1 year or more and in quantities greater than or equal to 1 kg. For known hazardous substance releases, reporting is only required when the released quantity is greater than or equal to the substance's CERCLA RQ.

l. Hazardous Substance: Any substance the Environmental Protection Agency (EPA) has designated for special consideration under the Clean Air Act, Clean Water Act, or the Toxic Substances Control Act (TSCA), and any hazardous waste under the Resource Conservation and Recovery Act (RCRA), or other substances designated by EPA which may present substantial danger to human health and the environment. Refer to Appendix 1 for a reference list of hazardous substances by environmental statute.

m. Hazardous Waste: A solid waste that exhibits any one of the following criteria:

- It exhibits any one of the characteristics identified in Part 261, Subpart C (40 CFR 261.3(a)(2)(i)).
- It is listed in Part 261, Subpart D, and has not been excluded from the lists by a delisting petition (40 CFR 261 (a)(2)(ii)).
- It is a mixture of a listed hazardous waste and a solid waste (40 CFR 261.3 (a)(2)(iv)).
- It is derived from the treatment, storage, or disposal of a listed hazardous waste (40 CFR 261.3 (c)(2)(i)).

n. Innocent Landowner Defense: Provides that if an owner or operator has not contributed to the contamination of a property and has conducted all appropriate inquiries into the previous ownership and uses of the property consistent with good commercial or customary practices in an effort to minimize liability, then the owner or operator is exempt from CERCLA liability.

o. Maximum Contaminant Level (MCL): Enforceable standards, establishing an upper limit for allowable contamination, for toxic compounds in public drinking water systems.

p. Media: Specific environments (i.e., air, water, soil) which are the subject of regulatory concern and activities.

q. National Environmental Policy Act (NEPA): A general statute declaring national environmental policy and promoting consideration of environmental concerns. Although NEPA targets Federal agencies, it also can affect private sector projects that require Federal interaction (e.g., permits or funds).

r. National Oil and Hazardous Substances Contingency Plan (NCP): Provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants.

s. National Priorities List (NPL): EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long term remedial action. The list is updated at least once a year.

t. Notice: An announcement used to advise appropriate authorities, employees, and often the public of intended or actual releases of pollutants, violations of discharge limits, or other prohibitions, and of the commencement of activities.

u. Occupational Safety and Health Act (OSH Act): A law that was enacted to reduce workplace injuries and illness by establishing standards that would enhance safe and healthful working conditions in places of employment throughout the United States.

v. Pathway of Exposure: The course a chemical or physical agent takes from a source to an exposed organism. Each pathway includes a source or release for a source, an exposure point, and an exposure route.

w. Phase One EDDA: An investigation to determine the likelihood of environmental contamination at a property to be purchased, leased, sold, or otherwise transferred.

x. Phase Two EDDA: An investigation to confirm whether property under consideration for purchase or sale is contaminated as indicated by the Phase One EDDA.

y. Phase Three EDDA: An investigation to quantify and characterize the extent of contamination at the site under consideration for transfer and shall consist of a full site investigation (Remedial Investigation) and selection of an appropriate remedy (Feasibility Study).

z. Property Transfer: An act of two or more parties, or the law, by which the title or an interest, benefit, or right to property is conveyed from one person to another. This includes the following: sale, purchase, lease, mortgage, escheat, eminent domain, and foreclosure. (Note. however, that CERCLA allows a defense for governmental entities that acquire the facility or property through escheat, other involuntary transfer, or eminent domain.)

aa. Quality Assurance/Quality Control (QA/QC) Plan: A system of procedures, checks, audits, and corrective actions to ensure that design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the known, acceptable, and documented quality.

bb. Real Property: Both things which are permanent, fixed and immovable, as lands, and rights arising out of, or connected with lands; and includes land and whatever is affixed thereto, and rights arising out of, or annexed to or exercisable within or about the land.

cc. Real Estate Contracting Office (RECO): The only duly trained individual in the real estate acquisition and/or disposal field who can negotiate for and commit the Government to a contract for real property.

dd. Regional Program Manager for Environment and Safety (RPMES): Airway Facilities personnel in each FAA region who are the primary point of contact for issues relating to environmental pollution and employee health and safety.

ee. Reference Dose: The level below which an individual exposed to a given chemical or substance would not exhibit adverse effects.

ff. Remedial Investigation (RI): A study to characterize the contamination at a site and to obtain information needed to identify, evaluate, and select cleanup alternatives.

gg. Remediation: The process of cleaning up a site or controlling the hazardous nature of a site.

hh. Resource Conservation and Recovery Act (RCRA): The regulation that provides "cradle-to-grave" control of hazardous waste by imposing management requirements on generators and transporters of hazardous wastes and upon owners and operators of treatment, storage, and disposal facilities (TSDF).

ii. Responsible Parties: May include present and past owners or operators of a site.

jj. Solid Waste: Any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, including solid, liquid, semisolid, or contained gaseous materials resulting from industrial, commercial, mining, and agricultural activities and from community activities.

kk. Superfund Amendments and Reauthorization Act (SARA): The regulation that authorizes EPA to draw upon two basic types of funding resources: (1) the Superfund – the Federal trust fund; and (2) responsible parties.

ll. Technical Personnel: Individuals or an entity managed or controlled by such individuals who, through academic training, occupational experience, and reputation (e.g., engineers, environmental consultants, attorneys), can objectively conduct one or more aspects of a Phase One EDDA.

mm. Toxicity: The degree of danger posed by a substance to animal or plant life.

nn. Toxic Substances Control Act (TSCA): The Act that provides EPA with the authority to require testing of chemical substances, both new and old, entering the environment and to regulate them where necessary.

oo. Treatment, Storage, and Disposal Facilities (TSDF): The three management activities that require a permit under RCRA.

pp. Underground Storage Tank (UST): Tanks, including associated piping, that are more than 10 percent below the ground surface.

qq. United States Geological Service (USGS): A Government entity, within the Department of the Interior, that maintains maps and studies of geologic conditions throughout the United States. The USGS also maintains aerial photographs of the United States.

rr. Wetlands: Areas that are temporarily or permanently inundated by surface or ground water and support vegetation adapted for life in saturated soil.

4. ROLES AND RESPONSIBILITIES. Compliance with the policies of this order is the responsibility of the following offices, services, regions, and centers (see Appendix 10).

a. Office of Environment and Energy shall be responsible for the overall review of FAA compliance with the provisions of this order. AEE will be available to provide assistance to offices, services, regions, and centers in developing guidelines and procedures for their program areas, interpreting policies established in this order, and advising to responsible officials in FAA concerning changes in environmental liability related to real property transfer practices and environmental liability.

b. Office of Aviation Policy, Plans, and Management Analysis shall ensure that all FAA benefit-cost, cost effective, lease vs. purchase and related analyses, as well as life cycle cost estimates are consistent with generally accepted economic theory and analytical practice. APO will include guidance on analyzing the cost and benefit of

FAA actions impacting the environment in its issuance of general guidance in analyzing investments and regulations.

c. The Office of the Chief Counsel shall be responsible for reviewing the order for sufficiency for compliance with CERCLA, as amended by SARA, and applicable real estate law. Chief Counsel shall provide legal counsel, assistance, and review for headquarters staff and assistant chief counsel for each region and center for accomplishing agency environmental and hazardous materials programs.

d. Assistant Chief Counsels in regions and centers shall provide legal counsel, assistance, and review in the conduct of regional environmental and hazardous materials programs. All EDDA reports shall be cleared through this office.

e. Assistant Administrator for Budget and Accounting shall ensure that adequate funding is available for the EDDA program in the budget outyears. ABA shall ensure that the program offices consider these requirements in their budget submittals in the annual call for estimates.

f. The Office of Budget shall use this order as the basis for supporting issues in the annual call for estimates related to additional costs required for environmental issues in the acquisition and disposal of real property. In justifying the budget to Congress, ABU shall consider these additional costs. ABU shall consult with APO for direction on performing cost benefit analyses.

g. Assistant Administrator for Human Resource Management shall incorporate EDDA training requirements in the individual development plans for all affected personnel.

h. Office of Training and Higher Education shall ensure that FAA training is updated to include instruction on EDDA's for real property acquisition, disposal, and transfer.

i. Assistant Administrator for Airports shall provide guidance to airport authorities in the conduct of EDDA's. For any airport expansion or, construction, the airport authority should conduct EDDA's in conjunction with NEPA assessments.

j. Office of Airport Planning and Programming shall develop an item in the airport grants program that will support the conduct of EDDA's by airport sponsors under the Airport and Airway Improvement Act on which facilities will be established, either by the FAA or that the FAA ultimately will operate. The requirement to conduct EDDA's will not apply where these responsibilities are otherwise specified in the contract provisions between the FAA and the airport authority. Note: The FAA Real Property Branch, Office of the Chief Counsel, and the Office of Environment and Energy have developed specific language for this purpose.

k. Executive Director for System Development shall include in the planning of its national programs the additional time and funds for the accomplishment of the EDDA and real property acquisition as well as the time and funds for any EDDA necessary for the property disposal as a result of new facility establishments.

l. Associate Administrator for NAS Development shall anticipate the impact of this order on the design and deployment of new systems and shall include in the planning of its national programs the additional time and funds for the accomplishment of the EDDA and real property acquisition as well as the time and funds for any EDDA necessary for the property disposal as a result of new facility establishments.

m. Associate Administrator for Contracting and Quality Assurance shall be responsible for developing contract language based on the contractor specifications provided in this order and for quality assurance standards to ensure that EDDA contractors meet the minimum requirements.

n. Real Property Branch shall provide oversight and guidance to the regional real estate branches in all environmental matters that affect the acquisition, management, and disposal of real property in accordance with this order and any present and future statutory, environmental requirements.

o. Executive Director for System Operations shall decide on whether to acquire or lease property that is environmentally contaminated in excess of $20 million in cleanup costs. This decision shall be based on the value of the property to the FAA mission as compared to the cost of the cleanup and whether an acceptable alternative site can be located. AXO shall consult with APO for direction on performing cost benefit analyses.

p. Associate Administrator for Airway Facilities shall:

- ensure that EDDA's are performed for lease or purchase of real property for all airway facilities (new sites, as well as conversions of existing leased sites) and the disposal action when an airway facility is decommissioned;

- ensure that, in the call for estimates, adequate funding is requested for these activities;

- ensure that all regional Airway Facilities divisions are provided resources and necessary training to carry out the requirements of the Federal environmental statutes and this order. (AF trained personnel may conduct the Phase One EDDA's. Alternatively, using the contractor requirements and specifications provided in Appendix 5, the EDDA's may be contracted to a reputable firm that has and uses a registered professional engineer in the performance of such EDDA).

AAF approval shall be required prior to acquisition of any property for new sites where environmental contamination is found ranging from $1 million to $20 million in estimated cleanup costs. This responsibility may not be redelegated. This decision shall be based on the value of the property to the FAA mission as compared to the cost of cleanup and whether an acceptable alternative site can be located. AAF- 1 shall consult with APO for direction on performing cost benefit analyses.

q. NAS Transition and Implementation Service shall be responsible for development of procedures that will incorporate the requirements of this order into the transition and implementation of the NAS. The AF Program Manager for Environment and Safety shall provide oversight and guidance to AF regional program managers for environment and safety in all matters of environment and safety that affect the acquisition, management, and disposal of real property under AF control. Requirements include annual budget requirements for program implementation.

r. Regional Airway Facilities Division Managers shall be responsible for the review, approval, and certification of all EDDA reports required for acquisition or disposal of an AF facility. The actual approval and certification may not be redelegated. The AF division manager shall make the decision on whether or not to proceed to a Phase Two EDDA. He/she shall decide whether to lease or purchase property that is environmentally contaminated where the estimate for cleanup of contamination does not exceed $1 million. This decision shall be based on the value of the property to the FAA mission as compared to the cost of the cleanup and whether an acceptable alternative site can be located. These division managers shall provide training to appropriate sector or regional personnel in the conduct of EDDA's and/or acquire outside contractor services to ensure compliance with this order. For this process, they shall consult with the Airway Facilities Regional Program Manager for Environment and Safety. These personnel shall consult with APO for direction on performing cost benefit analyses.

s. FAA Technical Center Director and Aeronautical Center Associate Administrator shall ensure that EDDA's are performed for the acquisition or lease of all new property by their respective centers. They shall ensure that, in the call for estimates, adequate funding is requested for these activities. For this process, they shall consult with the Program Managers for Environment and Safety. FAA trained personnel may conduct these Phase One EDDA's or the EDDA's may be contracted to a reputable firm with a registered professional engineer. They shall

decide on whether or not to acquire or lease property that is environmentally contaminated. This decision shall be based on the value of the property to the FAA mission as compared to the cost of the cleanup and whether an acceptable alternative site can be located. All property acquisitions are approveable at the Center level up to $20 million. Above $20 million, the FAA Administrator shall make the decision. These personnel shall consult with APO for direction on performing cost benefit analyses.

t. Regional Administrators, Deputy Director for the FAA Technical Center, and Deputy Associate Administrator for the Aeronautical Center shall be responsible for coordination of cross-divisional and cross-regional environmental matters and for overseeing regional environmental activities. They shall be responsible for coordinating the EDDA process in the regions and ensuring effective cooperation between organizations involved in the EDDA process. It shall be the responsibility of the region/center to determine the method of training as well as scheduling training for organizations other than those straightlined to headquarters, such as AF, Air Traffic, Airports, etc. These personnel shall consult with APO for direction on performing cost benefit analyses.

u. Regional and Technical Center Logistics Division Managers and the Aeronautical Center's Director of Acquisition shall ensure that contracting for EDDA's is provided in a timely manner and that such contracts are in accordance with Federal and agency contracting regulations and the guidance in this order. The regional Logistics Division Manager is responsible for an EDDA requirement and report necessary for any facility not operated by, or to be under the control of, the regional AF Division. Except for the approval and certification of the EDDA, the regional Logistics Division Manager may redelegate all actions to an appropriately trained individual.

v. Regional Acquisition Management Branch shall provide timely contracting service to requisitioners of EDDA contracts in accordance with established Federal contracting regulations.

w. Regional Real Estate Branches shall:

(1) be available to participate in any FAA in-house performance of an EDDA with regard to contact and/or interviews with property owners, title searches, and real estate appraisals in preparation for real property acquisition and disposal;

(2) initiate formal negotiations for the acquisition of new sites or disposal of real property only after the EDDA process required by this order has been accomplished and the appropriate certification provided;

(3) proceed with the purchase of an existing leased site after the EDDA is initiated, but not delay the acquisition or exercising the right of eminent domain while such audit is being performed;

(4) retain indefinitely the original, or an executed copy of, the EDDA report and its approval/certification with the real estate file.

5. PROGRAM IMPLEMENTATION. The offices listed in paragraph 4 are responsible for carrying out the requirements of this order as it applies to their functions. Program implementation includes activities such as training, coordination within the FAA, and procurement requirements for contractor support.

6. QUALIFICATION AND TRAINING FOR FAA PERSONNEL. Each of the offices in paragraph 4 shall be responsible for ensuring that FAA personnel and managers are adequately trained and qualified to oversee and manage the EDDA process. They are responsible for ensuring that only qualified contractors perform EDDA's. (See Appendix 5 for recommended contractor qualifications.)

a. FAA personnel performing EDDA's should meet the following:

(1) Have received at least 16 hours of EDDA training and have conducted, participated in, or reviewed 5 or more EDDA's; or

(2) Have a degree in a scientific discipline relevant to the EDDA process (e.g., environmental science, geology, chemistry, biology, forestry) and 16 hours of EDDA training as described in (1) above.

b. All personnel who review Phase One reports must meet the requirements for personnel performing EDDA's and any additional training determined necessary by the Airway Facilities Program Manager for Environment and Safety.

c. All personnel who provide oversight for Phases Two and Three investigations shall meet the requirements in (1) above and also have had the Contracting Officer's Technical Representative training.

d. Until the Office of Training and Higher Education can develop an FAA EDDA course, out-of-agency training may be utilized. Any EDDA training shall include instructions on visual site inspections, record searches, and site owner and personnel interviews.

e. The Hazardous Materials and Special Project Staff (AEE-20) offers an EDDA training workshop and will provide the workshop upon receipt of request with travel funding from the requested organization.

f. Personnel trained for this responsibility should do this as the primary function of their positions.

Note: This responsibility should not be viewed or undertaken as a side line or an additional responsibility by a professional whose primary focus is in another specialty.

7. AUTHORITY TO CHANGE THIS ORDER.

a. The Administrator reserves the authority to approve changes which establish policy, delegate authority, or assess responsibility.

b. The Director of Environment and Energy may issue changes to this order for compliance with the latest EDDA practices. The Office of Environment and Energy (AEE) will advise the responsible FAA components of such changes as soon as these changes are known.

c. Changes proposed by an organizational element within FAA must be submitted to AEE. AEE will oversee the coordination of the change to the appropriate approval authority and ensure final processing authority.

8. FUNDING AND BUDGET REQUEST PROCEDURES.

a. All organizations affected by this order shall immediately begin submission of a fiscal year budget item for the management of all EDDA's. The estimate shall cover yearly costs for the conduct of all EDDA's. It is the responsibility of each region and center to submit a yearly budget on the costs associated with these EDDAs, as required in the Annual Call for Estimates-Facilities and Equipment (F&E). The Office of Environment and Energy Hazardous Materials and Special Projects Staff, AEE-20, can be contacted for assistance in these budget estimates.

b. In order to facilitate implementation of the EDDA program in the FAA, the Office of Environment and Energy (AEE-20) is providing limited funding for the conduct of EDDA's during fiscal years 1993 and 1994. Organizations can contact the Hazardous Materials and Special Projects Staff (AEE-20) for funding assistance. All organizations affected by this order shall reflect their budgetary needs in the A-106 reporting software as a facility project.

9.-19 RESERVED

CHAPTER 2. ENVIRONMENTAL DUE DILIGENCE AUDIT OVERVIEW

20. GENERAL. This chapter provides an overview of the EDDA process. An EDDA program is necessary to avoid costly litigation and remediation liability under CERCLA. (Refer to Appendix 2 for a regulatory overview of CERCLA liability.) The EDDA program shall be anticipated and conducted during the planning phase of the real estate property transfer process. All reports generated as part of the EDDA process shall be maintained indefinitely with the real estate file.

21. PHASE ONE EDDA.

a. A Phase One EDDA is performed to identify potential areas of hazardous waste contamination. If problems are known or suspected, look for an alternate site. If there is no alternate site and the facility must be established, with the approval of AEE-20 and the division manager, Phase One and Phase Two may be run concurrently by the same contractor. This will allow the research of historical data and the sample testing to be accomplished in a minimum amount of time. **This is the only exception to paragraph 21e below and is not to be relied on except in extreme cases.**

b. A Phase One EDDA shall be performed prior to any type of acquisition, disposal, or outlease/outgrant of real property. When additional land is being added to an existing facility and an EDDA has been conducted on the original facility (but not on the land being added), then it is only necessary to complete a "check" of the newly added area. At a minimum, a "check" shall consist of a surveillance of the newly added land for visual signs of contamination.

c. The Phase One EDDA shall consist of a visual inspection of the property, an investigation of past uses and owners of the property, and a regulatory file search for environmental compliance violations. No environmental sampling shall be performed during this investigation. The audit ends with a Phase One Report that presents the results of the investigation and provides recommendations for future action.

d. If known or suspected areas of hazardous material or waste contamination are identified during the Phase One EDDA for a proposed acquisition or lease, then an alternative property shall be identified, if possible, and an additional Phase One EDDA shall be performed.

e. A Phase Two EDDA shall only he performed for a proposed acquisition or lease if no alternative properties can be identified that pass the Phase One EDDA.

22. PHASE TWO EDDA.

a. A Phase Two EDDA is performed to investigate further suspected areas of contamination identified during the Phase One EDDA.

b. A Phase Two EDDA shall consist of limited environmental sampling. Only those areas suspected to be contaminated shall be investigated. Results of the Phase Two EDDA shall be presented in a report, along with recommendations for further action.

c. If the results of the Phase Two EDDA show the presence of contamination above acceptable levels, and the FAA is committed to purchasing this property, then a Phase Three EDDA shall be performed.

23. PHASE THREE EDDA.

a. A Phase Three EDDA is a comprehensive study to quantify the extent of contamination at a property.

b. A Phase Three EDDA shall only be performed if the presence of hazardous contamination is identified during the Phase Two EDDA and the property is essential to the FAA.

c. A Phase Three EDDA shall consist of a remedial investigation to characterize and quantify the nature and extent of contamination at the property, a risk assessment to quantify the potential human health and environmental risks posed by the property, and a feasibility study to identify the appropriate remedy for the property and the time to complete such remedy.

d. A cost/benefit analysis shall be performed to determine if the cost to remediate the property exceeds its value to the FAA.

24-25. RESERVED.

CHAPTER 3. PHASE ONE EDDAs

30. GENERAL. This chapter provides direction for conducting, reviewing, and interpreting results of Phase One EDDA's. The purpose of a Phase One EDDA is to determine the likelihood of environmental contamination at a property to be purchased, leased, sold, or otherwise transferred.

a. When acquiring property, costs of remediating contaminated property shall be considered as part of the purchase or lease costs of the property, and whenever possible, shall be borne by the seller or lessor of the property.

b. The following liability limitation clause has been developed for use in land leases for on-airport technical facilities. If a sponsor does not agree to this clause in the lease, an EDDA would be necessary for any new facility requirements.

"The Government agrees to remediate, at its sole cost, all hazardous substance contamination on the leased premises that is found to have occurred as a direct result of the installation, operation, and/or maintenance of the (type of facility) facility. The Lessor agrees to remediate, at its sole cost, any and all other hazardous substance contamination found on the leased premises. The Lessor also agrees to save and hold the Government harmless for any and all costs, liabilities, and/or claims by third parties that arise out of hazardous contamination found on the leased premises not directly attributable to the installation, operation, and/or maintenance of the (type of facility) facility."

c. When disposing of property, the results of the EDDA process shall be used to determine whether notification to purchasers is required under Federal, State, and local law. When leasing or selling the property to third parties (or for out-grants), the results of the EDDA shall be used to establish a baseline environmental record of the property as a defense against future claims. For lease terminations, an EDDA shall be performed. For disposals, the requirements of the Community Environmental Response Facilitation Act (CERFA) (see Appendix 2) must be satisfied.

d. Environmental compliance requirements for space lease acquisitions shall be covered in the solicitation for offers and the final lease document and are, therefore, excluded from this order. Compliance includes permits, waste storage requirements, etc.

31. PHASE ONE EDDA. A Phase One EDDA shall be conducted for all real property transfers including new leases, purchases, disposals, and lease terminations. Phase One EDDA's will not be required for renewal leases of existing sites or where the FAA has easement or right-of-way access agreements and is not performing any operations on the property and does not have any ownership liability. Agreed-upon easement and access activities shall not include management, use, or maintenance activities using hazardous materials. Additionally, Phase One EDDA's will not be required for leases involving office space only.

a. Each of the following elements is required for a complete Phase One EDDA:

(1) A pre-audit questionnaire to obtain fundamental information concerning a property.

(2) A document and record search to determine whether there is any publicly available information on actual or potential contamination on or related to the property, such as those sources listed in Appendix 3, paragraph 4.

(3) A physical assessment (walk through) of the property (and any improvements to the property) including interviews with on-site personnel who have knowledge of past and present environmental practices.

(4) A written report documenting the process and results of the Phase One EDDA.

b. The Phase One EDDA shall be conducted with a protocol that, at a minimum, is as comprehensive and complete as the one presented in Appendix 3 by an individual who meets the requirements of paragraph 6a. The FAA protocol incorporates all elements of the new ASTM standards, as well as certain criteria specifically tailored to the FAA and its needs. If the region does not have adequate resources, including qualified staff, then the EDDA's may be contracted out. In the event that a region customizes the protocol for its own use, that region must submit the protocol to AEE-20 for approval prior to using that protocol. The Phase One EDDA shall include an examination of the following site characteristics or uses:

(1) Asbestos usage in any buildings on-site

(2) Hazardous materials usage or release on the subject or adjacent properties

(3) Underground and aboveground storage tanks (whether in-place or removed)

(4) Indoor air contamination in any buildings onsite

(5) PCB transformers

(6) High radon levels (in the event that enclosed structures exist, or will be built onsite)

(7) Site hydrogeology, location, demographics

(8) Proximity to wetlands and known wells

(9) Pesticide and herbicide contamination.

c. When dealing with property owners or lessors, they shall be ensured that the EDDA process is a routine part of the acquisition process for all property transfers. They can be assured that the FAA will not reveal any information from our study or testing to non-government entities, but that in the event that significant contamination (e.g., poses an eminent risk to human health or the environment) is discovered, the FAA may be obligated to reveal this information to appropriate local, State, or Federal agencies. If the owner or lessor is not willing to accept these conditions, then the FAA shall look elsewhere for an acceptable property. No judgments, conclusions, or recommendations concerning actual or potential contamination shall be communicated to non-FAA personnel with the exception of the property owners or lessors who shall be informed of any FAA findings. An independent real estate appraiser, acting as an agent of the FAA to determine an estimate for just compensation on the property transfer, will be provided the EDDA report. These findings, along with the appraisal report, are property of the Government and may not be divulged except by the Government.

d. Due to safety concerns, potentially hazardous materials shall not be handled during the audit. Hazardous materials include, but are not limited to, items such as drums which may contain waste, or unmarked containers.

32. REPORT PREPARATION. The Phase One EDDA report shall be written after completing the audit protocol.

a. The purpose of the Phase One report is to:

(1) Document the results of the Phase One EDDA.

(2) Document that due diligence has been exercised in the conduct of the audit.

(3) Provide the Phase Two auditor (if required) with information necessary to scope the Phase Two investigation.

b Appendix 4 lists the required elements of the Phase one EDDA report. All backup documentation, including protocol recording sheets, correspondence with State agencies, and site maps shall be included as appendices to the report.

c. The Phase One report shall be reviewed for correctness and completeness by an individual who meets the requirements set forth in Chapter 1, paragraph 6b.

33. RESULTS INTERPRETATION. The results of the Phase One EDDA, as contained in the Phase One report, shall be used as the basis for a decision as to whether the property is likely to be free from contamination, whether a Phase two EDDA is warranted, or whether the potential for contamination is such that the property shall not be acquired. This decision shall be made at the division manager level.

a. Phase Two ground water and soil assessments are required when:

(1) Hazardous materials are used, stored, or treated on-site, in such a manner that they may have impacted soil or ground water.

(2) Hazardous materials were ever used on an adjacent property.

(3) The site or adjacent properties have a history of contamination and indications of a release or suspected release are evident (e.g.. stressed vegetation, employee interviews).

(4) Vegetation is stressed or stained.

(5) Underground tanks are in place or have been removed without a document of a “clean close," issued by the local environmental authorities. However, Phase Two testing shall not be necessary if the owner/operator can certify by tank integrity/leak detection documentation that the tanks are not leaking.

(6) Evidence of leaking or excessive spillage is present close to the aboveground tanks.

(7) On-site retention ponds are present.

(8) Pesticides were managed or stored on-site in an inappropriate manner, or when unregistered pesticides are observed onsite.

(9) PCB equipment is used onsite or on adjacent property and a leak has occurred, or is suspected (e.g., due to staining around the equipment).

b. Phase Two indoor air sampling is required when:

(1) Hazardous materials (including PCB's) have been used onsite and a release has occurred or is suspected of occurring. This information can be obtained from the visual inspection, on-site records search, or employee interviews.

(2) The Occupational Safety and Health Administration (OSHA) records indicate occupants have complained about indoor air quality.

c. Phase Two radon testing is required when:

(1) Records and/or tests indicate a level of radon at the property exceeding 4 pico-Curies per Liter (4 pCi/L) or other, more restrictive State levels.

(2) Radon mitigation activities are taking place at nearby facilities.

d. Phase Two underground tank testing is required when underground tanks exist at the site. However, Phase Two testing shall not be necessary if the owner/operator can certify by tank integrity/leak detection documentation that the tanks are not leaking.

e. If the property is being sold or otherwise transferred by the FAA, it shall be determined whether the property falls within the requirements of 40 CFR 373. The notice required for storage of 1 year or more is applicable only at sites where 1,000 kg have been stored, unless the CERCLA RQ is greater than 1,000 kg. In that case, notification is not required until the quantity stored exceeds the RQ. The notice required for known releases of hazardous substances applies only when the released quantity exceeds the CERCLA RQ.

34. CONTRACTOR SPECIFICATIONS. If services outside the FAA are procured to perform the Phase One EDDA, then the contractor shall meet or exceed the requirements specified in Appendix 5.

35.-39. RESERVED

CHAPTER 4. PHASE TWO EDDA OVERSIGHT

40. GENERAL. This chapter provides direction to FAA project managers on the goals, management, and oversight of Phase Two EDDA's.

a. The purpose of the Phase Two EDDA is to confirm whether property under consideration for acquisition and disposal is contaminated as indicated by the Phase One EDDA.

b. The Phase Two EDDA shall follow a Phase One EDDA and shall only be conducted with the approval of the division manager of the requesting organization.

c. The Phase Two EDDA shall be performed by a contractor who meets the specifications described in Appendix 5.

41. PHASE TWO EDDA PROCESS.

a. The Phase Two EDDA includes further investigation of possible contamination discovered during the Phase One EDDA, and will include on-site environmental testing and laboratory analysis. The Phase Two investigation may require extensive sampling and may be conducted in several stages to obtain the required information more effectively.

b. Types of Phase Two sampling include:

(1) Soil sampling determines if a release has had an impact on site soil by assessing the most likely sources of contamination.

(2) Ground water sampling determines if a release has had an impact on site ground water. It often takes place after, or in conjunction with, soil testing, although it is not necessary to take ground water samples at each location from which a soil sample is taken. (The decision to sample ground water shall be based on factors such as proximity of the potential contamination to ground water, hydrogeology, and contaminant characteristics.) Ground water sampling can be done through the installation of ground water monitoring wells or through the use of a hydropunch. All applicable environmental permits must be obtained in accordance with the Underground Injection Control (UIC) well program (40 CFR 144-149), as well as applicable State requirements, prior to well installation, etc. While less expensive, the samples obtained from a hydropunch are not repeatable. Ground water monitoring wells can become pathways for contaminants and as such shall be formally closed and abandoned unless an ongoing program of monitoring is contemplated.

(3) Indoor air quality testing determines whether any naturally occurring contaminants (such as bacteria) or other contaminants used in the operations in the building (such as chemicals) will harm the health of occupants of the building.

(4) Drums and waste materials testing determines whether drums or other waste materials found or abandoned onsite have posed a threat to ground water or soil; it is often performed in conjunction with soil and ground water testing.

(5) Asbestos testing determines whether buildings contain asbestos containing materials (ACM). All asbestos sampling inspections must be conducted by an Asbestos Hazard Emergency Response Act (AHERA)-accredited asbestos inspector and work plans must contain a health and safety plan.

(6) Underground tank testing determines whether a tank (and associated piping) has leaked, or is likely to leak, based on the age of the tank, tank construction materials, containment used, any other methods of protection (i.e., cathodic), and leak detection methods. Tank testing also will help determine whether underground

tanks meet State and Federal requirements. Note: Pressure testing shall not be used if the tank is known to, or suspected of, containing some type of product.

c. The contractor shall be provided with a copy of the Phase One EDDA report and all relevant appendices. Based on the Phase One report and on the contractor's expertise, the Phase Two EDDA shall have the following elements:

(1) Sample and Analysis Plan Review (Phase Two proposal). Sample and Analysis Plan elements are found in Appendix 6.

(2) Field Sampling and Analytical Results Review

(3) Phase Two Report Review.

42. FIELD SAMPLE AND ANALYTICAL RESULTS REVIEW. The results of the sampling process shall be evaluated as follows:

a. Determine whether the review was actually carried out in accordance with the sampling and analytical plan.

b. Ensure that there is consistency between samples and the QA/QC samples (duplicates, split, spiked, and blank samples).

c. Evaluate the field data for each sampling media against the following criteria:

(1) Ground water sampling data are commonly evaluated through comparison with various published standards. The most common is the drinking water maximum contaminant limit (MCL), which is the maximum permissible level of a contaminant in water delivered to any user of a public water system.

(2) Soil sampling data shall be evaluated using the risk assessment methodology described in Chapter 5. It should be determined whether the soil contaminant levels exceed acceptable human health risks or other established standards.

(3) Indoor air quality and asbestos data shall be evaluated against published standards promulgated by the Occupational Safety and Health Administration (OSHA) and EPA.

43. PHASE TWO REPORT REVIEW. The purpose of the Phase Two report is to document all of the information collected during the Phase One investigation, the sampling and analysis plan developed for the Phase Two investigation, all data and analyses performed during the Phase Two investigation, and findings, conclusions, and recommendations.

a. The Phase Two report must include each of the elements listed in Appendix 7.

b. The Phase Two report shall be signed by a Registered Professional Engineer.

c. The Phase Two report shall be reviewed by the division manager of the requesting organization. This person shall have received training regarding the FAA's Phase Two EDDA requirements and meet the requirements as defined in paragraph 6c. If requested by another program office, assistance may be provided by the regional Airway Facilities Division Manager when the EDDA is for other than airway facilities projects.

d. If the testing and analysis indicate contamination, a cost benefit analysis shall be performed to evaluate the worth of the property versus the cost of remediation. The Phase Three Cost Estimating Aid (Appendix 8) can be used to support this analysis.

e. The decision to proceed to Phase Three shall be approved by the division manager of the requesting organization and the Deputy Regional Administrator, based on the need for the site in question, cost, liability, and risk considerations.

f. In addition to conducting a Phase Three EDDA, the authorized person under subpart e, above, shall look into other alternatives which may determine whether a property is to be remediated or taken out of consideration for transfer. If a property is being considered for purchase, it shall be considered whether the current owner will remediate the property and offer a contractual indemnity and security against the possibility that further contamination will be discovered.

g. If the property is being sold or otherwise transferred by the FAA, it shall be determined whether the property falls within the requirements of 40 CFR 373. The notice required for storage of 1 year or more is applicable only to sites where 1,000 kg have been stored, unless the CERCLA reportable quantity (RQ) is greater than 1,000 kg. In that case, notification is not required until the quantity stored exceeds the (RQ). The notice required for known releases of hazardous substances applies only when the released quantity exceeds the CERCLA reportable quantity.

44-49 RESERVED.

CHAPTER 5. PHASE THREE EDDA OVERSIGHT

50. GENERAL. If the sampling and analysis activities performed during the Phase Two EDDA reveal the presence of hazardous waste contamination above allowable limits, and an alternative property could not be identified for acquisition, then a Phase Three EDDA will be necessary. The purpose of the Phase Three EDDA is to quantify and characterize the extent of contamination at the site and shall consist of a full site investigation (remedial investigation) and selection of an appropriate remedy (feasibility study). This chapter will provide direction on proper risk assessment oversight during the remedial investigation and remediation selection. For a more detailed explanation of the risk assessment methodology discussed in this chapter, refer to EPA's Risk Assessment Guidance For Superfund (RAGS).

51. RISK ASSESSMENT METHODOLOGY.

a. Risk assessments are performed to provide a framework for developing the information necessary to assist decisionmaking at remedial sites. Specific objectives of the process are to:

(1) Provide an analysis of risks when no remedial action is performed and help determine the need for action at a site.

(2) Provide a basis for determining levels of chemicals that can remain onsite and still be adequately protective of human health.

(3) Provide a basis for comparing potential health impacts of various remedial alternatives.

(4) Provide a consistent process for evaluating and documenting public health threats at sites.

The risk assessment process can be generalized into three broad areas which are the exposure assessment, toxicity assessment, and risk characterization. Each of these topics, as well as remedial design goal development, will be discussed below.

b. An exposure assessment is performed to determine the type and magnitude of exposure to chemicals of potential concern. While overseeing the exposure assessment for completeness, the reviewer shall ensure that:

(1) The physical environment at the site, such as climate, meteorology, geologic setting, soil type, ground water hydrology, and location and description of surface water are characterized correctly.

(2) All potentially exposed populations are identified. This will include an analysis of present populations and potential future populations. For example, a site used for industrial activity would not have to account for residential use under the current scenario. However, if it is possible that the site could be used for residential purposes, then this scenario must be examined as a potential future scenario.

(3) Explanations are provided for eliminating exposure pathways (e.g., at a site where ground water is contaminated but not used for human consumption, the ground water ingestion pathway shall be eliminated for the present use scenario). An explanation also shall be provided for each pathway that is included in the analysis (e.g., at a site with access to contaminated soil, the soil ingestion pathway shall be included in the analysis).

(4) All exposure calculations are performed correctly and in accordance with RAGS. Exposure assessment intake values shall be compared with values found in RAGS, Office of Solid Waste and Emergency Response (OSWER) Directive 9285.6-03, or the Exposure Factors Handbook (EPA/600/8-89/043).

c. The purpose of the toxicity assessment is to weigh the available evidence regarding the potential for particular contaminants to cause adverse human health and environmental effects and to provide, where possible,

an estimate of the relationship between the extent of exposure to a contaminant and the increased likelihood and/or severity of adverse effects. Both carcinogenic and non-carcinogenic effects shall be described clearly.

d. The sources of toxicity information for each contaminant of concern must be clearly stated. Additionally, EPA has established a hierarchy of data sources that must be adhered to. The primary source of toxicity data shall be EPA's Integrated Risk Information System (IRIS). If IRIS does not contain the necessary information, then EPA's Health Effects Assessment Summary Tables (HEAST) shall be reviewed. After the HEAST, the order for reviewing data sources is: EPA criteria documents, Agency for Toxic Substances and Disease Registry (ATSDR) toxicological profiles, EPA's Environmental Criteria Assessment Office, and lastly, the open literature.

e. The risk characterization combines the results of the exposure and toxicity assessments, under a no-action alternative, to quantify potential health hazards. Both carcinogenic and non-carcinogenic risks must be calculated. When reviewing the risk characterization, it is important to ensure that all calculations are performed correctly and in accordance with RAGS. Also, the reviewer must examine whether pathways and health effects were combined correctly. For example, non-carcinogenic risks shall only be combined when the contaminants affect the same target organ.

f. Uncertainty in the risk assessment shall be described. Uncertainty may arise from inaccurate exposure assumptions, incomplete toxicity data, and unknown effects from exposure to multiple contaminants.

g. Risks that exceed $I \times 10^{-4}$ (one additional cancer case for every 10,000 people exposed) for carcinogens or a hazard index greater than one for non-carcinogens trigger the need for remedial action at a site.

h. If warranted due to unacceptable risk at a site, preliminary remedial design goals shall be included at the end of the risk assessment. Remedial design goals are the cleanup levels set for a particular site and may include Federal and State applicable or relevant and appropriate requirements (ARARs). Refer to EPA's CERCLA Compliance With Other Laws Manual for a complete list of ARAR's. When ARAR's are not available, risk-based remedial design goals shall be determined. Risk-based remedial design goals are determined by selecting an appropriate level of risk, and calculating the resulting exposure and concentration levels.

i. For a discussion on selecting treatment technologies, please refer to Appendix 9.

j. The Phase Three EDDA shall be performed by a contractor who meets the specifications described in Appendix 5.

52. REMEDIATION COST MODEL.

a. After the remedial design goals have been established, site remediation can commence only if the authorized official has approved the action and adequate property rights have been acquired by the regional real estate branch. It is important, however, to have an estimate of the remedial costs before the remediation begins to determine if the remediation cost exceeds the property value to the FAA.

b. The automated cost model shall be used to provide an order of magnitude estimate of the cost to remediate the site.

c. The estimated cost for cleanup shall be compared with the true value of the property to the FAA. If the costs are excessive, then an alternative property shall be selected.

53.-59. RESERVED.

APPENDIX 1. REFERENCES TO HAZARDOUS SUBSTANCE LISTS*

1. CERCLA Section 101(14), 4O CFR 302.4
2. SARA (EPCRA) Extremely Hazardous Substances 40 CFR Part 355 Appendix A
3. SARA (EPCRA) Toxic Chemicals 40 CFR 372.65
4. Clean Air Act Hazardous Air Pollutants (HAPs)
5. Clean Air Act Section 112(r) Congressional selection list
6. Clean Air Act Section 112(r) Draft proposed rule list
7. Clean Air Act Section 112(r) Substances by source
8. Resource Conservation and Recovery Act (40 CFR 261)

*Note: These lists are continually updated and new lists may have been created since the distribution of the order.

APPENDIX 2. REGULATORY OVERVIEW

1. CERCLA Requirements Applicable to the Purchase or Lease of Property By the FAA.

a. The United States Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980 to provide funding and enforcement authority for cleaning up the thousands of hazardous waste sites created in the United States in the past and for responding to hazardous substance spills. In 1986, Congress enacted significant revisions to CERCLA through the Superfund Amendments and Reauthorization Act (SARA).

b. CERCLA, as amended by SARA. authorizes the United States Environmental Protection Agency (EPA) to draw upon two basic types of funding resources: (1) the Superfund – the Federal trust fund; and (2) Responsible Parties. Responsible Parties may include present and past owners or operators of the site.

c. In an attempt to address the issue to individuals or groups who acquire property without prior knowledge of contamination, Congress incorporated what is known as the innocent landowner defense" into CERCLA (sections 107(b)(3), l0l(35)(A) and (B)). The innocent landowner provision states that if a landowner has not contributed to the contamination of a property and has conducted all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practices in an effort to minimize liability, then the landowner is exempt from CERCLA liability.

d. The definition of "all appropriate inquiry" fails to address the one important fact that the science of environmental due diligence audits (EDDA), or the practice of inspecting a property to determine if contamination is present, is not precise. No standard procedure for EDDA's currently exists.

e. As stated in 20(b), CERCLA defines a "responsible party" as any present or past owner or operator at the site. As such, an individual or organization that leases property and acts as an operator also may be held to the joint and several liability clause under CERCLA and be required to contribute to any or all of the site investigation and cleanup.

f. The case law pertaining to CERCLA sections 107(b)(3) and 101(35)(A) and (B) has suggested that to invoke the innocent landowner defense, it must be demonstrated that customary practices were employed to investigate the site.

2. CERCLA Requirements Applicable to the Sale or Lease of Property From the FAA.

a. CERCLA contains specific requirements applicable to the transfer of real property by Federal agencies. Section 120(h) of CERCLA imposes certain notice and covenant requirements on the sale, by Federal agencies, of property where a hazardous substance has been stored, released, or disposed.

b. In response to CERCLA section 120(h), EPA promulgated regulations for the reporting of hazardous substance activity when selling Federal real property (40 CFR 373). The Federal Real Property Transfer Regulation requires any department, agency, or instrumentality of the United States that wishes to transfer real property owned by the United States, where hazardous substances were stored for 1 year or more and known to have been released, or disposed of, to include in the contract, notice of the type and quantity of hazardous substance and notice of the time when storage, release, or disposal took place. This is contingent upon the extent that such information is available from a complete search of the agency files.

c. The Federal Real Property Transfer Regulation does not address leases or easements, as these types of contracts involve a complicated area of real property law and may be affected by specific deed or lease terms and by State common law.

d. Although the scope of the Federal Real Property Transfer Act does not include leases or easements, organizations that operated at a site that did not own the property may still be liable under CERCLA section 107(a).

e. The Community Environmental Response Facilitation Act (CERFA) (PL-102-426) requires the Federal Government, before termination of Federal activities on any real property owned by the Government, to identify real property where no hazardous substance was stored, released, or disposed of. The Act requires the deed of sale or transfer to stipulate that the Federal Government will conduct any remediation necessary.

3. Individual State Requirements.

a. A number of States impose environmental requirements on the seller of real property where a hazardous substance has been managed or released. The requirements established by these States roughly fall into four general categories:

(1) Actual cleanup of hazardous substances prior to sale.

(2) Notice to the purchaser prior to sale.

(3) Registration/approval by State or local agency.

(4) Hazardous waste management facility notice in deed.

b. Because the State laws pertaining to property transfer are still evolving, it will be necessary to contact State agencies routinely to identify changes in their requirements.

APPENDIX 3. PHASE ONE EDDA PROTOCOL

1. General.

The FAA protocol has been compared to other protocol, including the one established by ASTM. The FAA protocol was found to be more complete than the ASTM protocol and includes such areas as asbestos, radon, and sensitive environmental areas, which are not found in the ASTM protocol. Until the ASTM protocol is as complete as the FAA protocol, it should not be used, unless supplemented by the applicable sections of the FAA protocol.

2. Primer on Environmental Issues

a. Inspection Observations. This part of the Phase One EDDA is intended to identify obvious signs of current or potential contamination. Many hazardous materials will cause staining of soils or other surfaces and may destroy vegetation, such as grass or plants. The presence of drums may be an indication of hazardous waste contamination. If drums are present and not labeled, do not attempt to open the drums or look inside them. Try to identify the contents of the drums from the site owner/operator, site personnel, or by reviewing any Material Safety Data Sheets (MSDS) that are on file.

b. Underground Storage Tanks. Leaking underground storage tanks (UST) used to store petroleum products or other hazardous substances present a hazard to the environment. Types of hazards include soil and ground water contamination and migration of released product into utility conduits or basements of nearby structures. The risks to humans include exposure to toxic fumes or contaminated drinking water. In addition, flammable materials migrating to conduits or basements present a risk of fire or explosion.

c. Aboveground Storage Tanks. The hazards posed by aboveground storage tanks (AST) are similar to those of UST's. All tanks not classified as UST are AST. AST's can serve a variety of functions, such as portable tanks used on construction sites, fiberglass tanks used in chemical processing operations, and large cylindrical steel tanks used at oil refineries.

A leaking AST used to store a petroleum product or other hazardous substance presents a risk of contaminating surface soils and surface waters, as well as ground water if a leak or spill goes undetected. An AST also poses a fire/explosion hazard if it contains flammable, combustible, or reactive materials.

d. Waste Handling Practices. The term hazardous substance refers to a wide range of chemical, radioactive, and biological substances or materials. These substances pose environmental, health, and safety risks due to specific characteristics related to the material such as flammability, combustibility, corrosivity, toxicity, reactivity, or explosivity. Hazardous materials have the potential to cause contamination to a property or its surroundings should they be released into the environment. In addition, the improper disposal of hazardous substances may result in contamination of soil, ground water, or surface water at the disposal location. This contamination can pose hazards to humans, vegetation, and wildlife as a result of either direct exposure to the hazardous substances or indirect exposure from contaminated soils or drinking water supplies.

Hazardous substances include a wide variety of materials ranging from household products to chemicals used in specific industrial processes. Hazardous substances may include the following: detergents, solvents, paints and allied products, petroleum products, agricultural chemicals, biological products, and equipment containing hazardous substances. Other hazardous substances may include pharmaceutical drugs, compressed gases, pigments and dyes, plasticizers, printing ink, boiler and heat insulating compounds, water treating and proofing compounds, and fire extinguishing media.

e. Polychlorinated Biphenyls. Polychlorinated biphenyls (PCB) belong to a broad family of organic chemicals known as chlorinated hydrocarbons. Virtually all PCB's in existence today have been synthetically manufactured. PCB's have been primarily used in electrical equipment, but also were included in hydraulic systems and oil filled heat transfer systems. PCB's are deleterious, once released into the environment they do

not break down into harmless chemical substances. It is known that PCB's cause chloracne, a painful, disfiguring skin illness. Evidence suggests that PCB's may also be carcinogenic and tetratogenic (fetus damaging), and EPA has determined that PCB contamination may pose a public health concern.

f. Asbestos. Asbestos is a naturally occurring mineral used since ancient times for a variety of purposes. This mineral occurs as a strong fiber with characteristics for heat insulation, sound insulation, and fire resistance. Over 3,000 different uses have been developed for asbestos, including building materials, which have been extensively used in the United States since the mid-1900's

As the use of asbestos in building materials increased, so did lung diseases among those who worked with asbestos. These diseases include asbestosis, lung cancer, and mesothelioma. Typically, these diseases take between 10 and 40 years to appear after exposure to asbestos in the air.

g. Pesticides. Pesticides are chemical products developed to eradicate a target species. Pesticides include insecticides, herbicides, rodenticides, fungicides. disinfectants, and plant growth regulators and have been developed to control insects, weeds, fungi, and rodents. Pesticides can significantly reduce agricultural crop losses, structural damage to property, and public health concerns. However, since these materials are "designed poisons," they pose a toxic health hazard if they are misused or improperly disposed. These chemicals have a variety of different trade names, chemical compositions, methods of action, toxicity, and environmental effects. The most widely used pesticides do share some common traits.

- They tend to be chlorinated hydrocarbons.
- They tend to produce adverse effects in humans, such as nerve damage, liver damage, and kidney failure.
- They tend to be bioaccumulative. This means that as plants and animals ingest these chemicals and are in turn ingested by other animals, the poisons accumulate up the food chain. Therefore, what starts out as a small, non-harmful release can accumulate into harmful doses to organisms large distances from the site.

h. Sensitive Environmental Areas. Wetlands are areas that are temporarily or permanently inundated by surface or ground water and support vegetation adapted for life in saturated soil. Typically envisioned as marshy or swampy areas adjacent to coastal regions, wetlands also encompass areas that are far inland of tidal waters and may or may not appear to be marshy or swampy.

Wetlands provide many benefits, including a habitat for a wide variety of wildlife; improvement in water quality; flood control; stabilization of the shoreline; and breeding, nursery, and feeding areas for commercial and recreational fish, and recreational uses such as hunting or fishing.

A wetlands investigation must be conducted for every property under consideration for purchase. If any modifications to the property or existing structures are going to be performed, a permit will be required, triggering the National Environmental Protection Act (NEPA) process. The presence of wetlands on the property may prevent the FAA from using the site for its intended purpose.

Wild and scenic rivers are recognized as possessing outstanding values such as scenic, recreational, geologic, water quality, fish and wildlife, historic, and cultural benefits. Often, sections of a particular river may be designated as "wild and scenic," while other sections may not.

i. Radon. Radon is a naturally occurring radioactive gas that cannot be seen, smelled, or tasted. Radon can accumulate inside enclosed spaces to levels that pose risks to human health, including lung cancer. Local regulatory files should be reviewed for the presence of radon in and around the area of the property under consideration for purchase.

3. Pre-Audit Questionnaire

The purpose of the pre-audit questionnaire is to obtain basic information about the property and to help focus the document search and the visual inspection.

Information for this questionnaire should be obtained from the site owner (or operator, if the owner gives permission to contact that operator) through a telephone interview or in writing.

The interviewee should be informed that this discussion and the ensuing site audit are routine practices and are being performed to assist the FAA in assessing the true value of the property under consideration for purchase. The EDDA auditor (FAA employee or contractor), under no circumstances, should discuss the purchase price of the property before, during, or immediately following the EDDA. Only an FAA realty specialist is authorized to discuss price with the owner.

· Where is the property located (complete address, longitude/latitude, parcel number, or legal description (if available))?

· Is the site located on any waterways or near schools or recreational facilities?

· How large is the property (acreage)?

· Does the property contain buildings or other improvements?

· How large are the buildings? What are the ages of the buildings? How are the buildings used?

· Who are the current owners?

· Who are the current operators?

- What is the current use of the property?
- Who were past owners and operators of the property? (Ask the interviewee to trace past ownership and uses as far back as possible.)
- What were past uses of the property?
- What activities take place at adjacent properties?
- Who are the main contacts to obtain access to the site?
- Is the current owner/operator aware of any present or past underground or above ground storage tanks being located on or adjacent to the desired property? If so, can the owner/operator demonstrate that the tanks have been properly closed or that existing tanks are not currently leaking?
- Is the current owner/operator aware of any landfill (private or public) operators on or adjacent to the desired property? If so, identify the types of wastes that were disposed of within the landfill.
- Is the owner/operator aware of any pesticide use, past or present, on the desired property? If yes, please elaborate.

- Is the owner/operator aware of any equipment (electrical/mechanical) containing hazardous substances (e.g., PCB's) on the desired property?

4. Document/Records Search.

A document search will allow the assessor to gather public information regarding the subject property and its prior and current uses. There are companies that, for a reasonable fee, offer comprehensive search and documentation of such records as the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), National Priorities List (NPL), RCRAS Notifiers, RCRAS Evaluation/ Violations, Registered Storage Tanks, Leaking Registered Storage Tanks, Solid Waste Landfills, and other pertinent information. The site assessor should, therefore, obtain and review the following information.

a. Hazardous Materials Usage/Releases/Underground Storage Tanks

(1) Title Search. Conducted at the local courthouse located at or near the city hall. Clerks should be able to help assist in records reviews.

- A list of past owners of the property for the last 50 years should be provided.

(2) CERCLIS. The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is a computer data base that stores information regarding each site on the National Priorities List (NPL) of Superfund sites. CERCLIS reports can be obtained from the RCRA/Superfund Industry Assistance Helpline (800-424-9810), the CERCLIS Helpline (202) 260-0056), the EPA regional office, or in most instances, from the State environmental agency.

· It should be determined whether the property under consideration is (or ever has been) on the NPL, and whether nearby properties (within 2 miles of the site) have been on the NPL.

(3) State Environmental Agency Site Lists. Many States maintain lists similar to those found on CERCLIS and also maintain lists of smaller fuel leak sites.

· It should be determined whether there have been any fuel leaks in the area.

5. State Environmental Agency Permit Files.

Information on facilities required to obtain environmental permits can be obtained from the State Environmental Protection Agency, or equivalent. The Agency also will have a record of permit violations.

- It should be determined whether the site has any permits for environmental activities. Permits include: air quality; hazardous waste treatment, storage, and disposal; Publicly Owned Treatment Works (POTW)/sanitary sewer; National Pollutant Discharge Elimination System (NPDES); stormwater discharge; and underground storage tanks.

6. Site Soil and Ground Water Test Results.

Phase One and Two EDDA's are common in the commercial sector. As a result, soil and ground water studies may be available for review on a limited basis.

- The owner of the property should be contacted for copies of these reports and test results, and

· It should be determined whether there is any cause for concern based on test results.

7. Local Fire District

The Fire Department often will have information regarding the hazardous materials usage at the proposed site and any underground tanks located there. The Fire Department also will have information on violations which may impact on human health and the environment**.** The local health department also should have information regarding radon in the area of the site.

a. Asbestos

Engineer's/Consultant's Asbestos Reports and Inspections. Surveys are conducted routinely for site assessment and regulatory purposes. If these reports have been prepared previously, a copy should be obtained from the owner/operator of the property.

b. Hydrogeology

The United States Geological Survey (USGS). The USGS maintains aerial photographs for the United States, which may be useful in determining past practices at the site. It also maintains information concerning soil characteristics and hydrogeology in a given area. The USGS is located in Reston, Virginia.

- Aerial photographs of the subject property and surrounding properties should be reviewed for the last 50 years to verify site activities and the activities at neighboring sites.
- The ground water and/or surface water flow at the property should be determined.
- The depth to ground water at the property should be determined.

c. Geology

The United States Department of Agriculture (USDA). The USDA generates soil survey reports on regional geology and soil types. The reports can be used to characterize the property.

d. PCBs

Utility Transformer Records. Under 40 CFR 761.180, facilities that maintain large transformers or capacitors that have a total capacity in excess of 45 kilograms of PCB's must maintain an annual PCB log onsite. Additional records are maintained by the EPA regional office.

e. Wetlands

(1) Town/County Planning or Zoning Office. This office typically is located at a city hall.

- To ensure the property is not zoned for a particular purpose, or that the property does not have any historical or recreational value, this office should be contacted.

(2) Wetlands Protection Hotline. If the property appears to be a possible wetland, the Hotline (800-832-7828) should be contacted.

(3) County Soil Survey Reports. These reports are available through the county planning office or the local soil conservation district.

(4) National Wetland Inventory Maps. These maps are available from the EPA regional office.

f. Indoor Air

State Occupational Safety and Health Administration (OSHA) Federal OSHA or County Health Department. These agencies can provide information on any indoor air or other health-related complaints that might be associated with the property.

8. Site Physical Assessment.

The site owner/operator should be interviewed and the following issues should be reviewed during a walk-through of the site:

a. Hazardous Materials Usage/Releases

(1) What are the current uses of the property?

(2) What are the former uses of the property? Was the site ever used for or by:

- Commercial tenants who handle hazardous waste
- Military or industrial research
- Machinery repair
- Landscaping
- Mining/Quarrying
- Oil/Gas Extraction
- Manufacturing
- Agriculture

(3) Are hazardous substances disposed of onsite, injected into ground water, or discharged into drains, septic systems, ponds, or lagoons?

(4) Are there any ponds or collection pits onsite? If so, what do they contain?

(5) Are any leaks, spills, or stains present on the property or in any buildings?

(6) Are there signs of stressed vegetation (browned, burned out) or stained soil?

(7) Are there any unmarked drums or containers onsite? If so, how many, are they covered, and what do they contain? DO NOT open the drums or look inside them. Look for a label or ask the property owner or site contact.

(8) Is the site littered with refuse?

(9) What hazardous materials are used, treated, or otherwise handled on site? Obtain Material Safety Data Sheets (MSDS) for each. (These are documents required by OSHA for each chemical used onsite. The sheets are prepared by the chemical manufacturer or importer and must include specific information,

including ingredients of 1% or more for non-carcinogens and 0.1% or more for carcinogens, known or suspected health risks, proper safety precautions, proper disposal methods, and other information to minimize health risks. As required by OSHA, the MSDS's should be readily available upon request.)

(10) Has there been any history of hazardous or municipal solid waste disposal onsite?

(11) Have there been any on-site or off-site releases?

(12) Are there any drinking water wells onsite?

(13) Are there any ground water monitoring wells onsite?

Why were they installed? Obtain monitoring results if available.

(14) Adjacent Property Usage

What are the present and former uses of the properties within a 1-mile radius of the site? Check all that apply:

- Commercial tenants who handle hazardous waste
- Military or industrial research
- Machinery repair
- Landscaping
- Mining/Quarrying
- Oil/Gas Extraction
- Manufacturing
- Agriculture

b. Underground Storage Tanks

(1) Are there any (operational, closed, or abandoned) underground tanks onsite? If so, please describe. Information should be available from your on-site contact.

- Tank description, Age, Capacity, Contents

(2) Is there evidence of overfilling or spills near the underground storage tank fill pipe?

(3) What types of leak protection and detection have been installed? When was the tank last tightness-tested? Did it fail its test?

(4) When was the associated piping last tested?

(5) Is each underground storage tank surrounded by a form of containment?

(6) Have underground tanks been removed from the property? Was the tank removal approved by the appropriate State environmental agency? When were they removed? What were the contents of the tanks? Obtain copies of documentation on tank removal.

(7) If the owner/operator does not believe there are any tanks onsite, has a qualified engineer performed a survey that indicates that the property is free of underground storage tanks? Obtain a copy of any survey conducted.

c. Aboveground Storage Tanks

(1) Are any aboveground storage tanks onsite? (This includes tanks that are located in basements or below grade, but not completely covered.) If so, please describe.

- Tank description, Age, Capacity, Contents

(2) Is there staining around any of the aboveground storage tanks (for example, where the tank would be filled?)

(3) Does the tank have secondary containment?

d. PCB Transformers.

(1) Are there any transformers onsite? If so, which of the following PCB-utilizing equipment is located onsite?

- Electrical Transformers
- Electrical Capacitors
- Hydraulic Systems
- Waste Oil Tank
- Other (Specify)

(2) Is any of the equipment leaking or damaged?

e. Asbestos

(1) When was each building onsite constructed? Note any building constructed prior to 1987 may contain asbestos.

(2) Has an asbestos survey ever been conducted? If so, what were the results?

f. Pesticides

(1) Are pesticides used, stored, or manufactured at the site? Was the site used for agricultural purposes?

(2) Has there ever been a spill of pesticides at the site?

g. Sensitive Environmental Areas

(1) Is the property located in an area designated as a wetland?

(2) Are there any rivers, streams, springs, lakes, or ponds located in the vicinity of the property?

(3) Is the property designated as a wilderness area or does it possess special natural features (e.g., caves)?

(4) Is the property subject to any zoning requirement that may have an impact on its intended future use?

h. Radon

(Answer this question only if there are any enclosed structures onsite, or if it is anticipated that such structures will be built onsite).

(1) Is there any reason to suspect that radon may be a concern in the locality in which the property is located based upon contacts with local regulatory agencies? If a radon screening was performed at the property, obtain a copy of the report.

i. Indoor Air Quality

(1) During the walk-through inspection of any buildings on the property, is there any indication that indoor air quality has been compromised by any of the activities conducted in the building, the materials used, or the internal HVAC system?

APPENDIX 4. PHASE ONE EDDA REPORT

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APPENDIX 5. CONTRACTOR SPECIFICATIONS

This appendix contains the minimum specifications that must be met by any contractor selected to perform EDDA's for FAA property transfers.

This appendix contains the minimum specifications that must be met by any contractor selected to perform Phase One EDDA's for FAA property transfers. Also included are general specifications for firms selected to perform Phase Two and Three EDDA's. More specific procurement requirements for Phase Two and Three EDDA's were not developed, as these criteria are highly dependent upon the scope of the actual work to be performed. Following these specifications is a sample Phase One EDDA contract from the Great Lakes Region (AGL).

1. Phase One EDDA Contractor Procurement Specifications

a. General. When selecting a contractor to assist the FAA in performing Phase One EDDA's, the service initiating the EDDA shall consider the following general practices:

- An explicit scope of work shall be included as part of the request for proposals (RFP) and contract.
- Interviews shall be conducted with the contractors who meet the standard RFP criteria (including the specific individuals who will be doing the work).
- A standard work product shall be reviewed as part of the proposal process
- All professional references shall be thoroughly verified.

b. Criteria. The following specific criteria shall be used to evaluate the potential Phase One contractors.

(1) Firm Experience.

i. Years: 3 (total, all activities)

ii.. Subject Matter Expertise:

- Environmental science and engineering including the following disciplines: geology, asbestos, hazardous materials management, and hydrogeology. Regulatory expertise also shall be required.
- 2 years of experience in doing Phase One EDDA's.
- Capability to perform Phase Two EDDA's. Requires disciplines such as toxicology, industrial hygiene, chemistry/risk assessment, and 3 years experience in conducting Phase Two EDDA's.

(2) Project Manager Experience.

i. Years: 5

ii. Subject Matter Expertise: Environmental Sciences

iii. Degree: M.S. or Ph.D.

iv. Professional Affiliations: Professional Engineer's or Geologist's Registration

v. Phase One Experience: 2 years of experience, within the last 5 years

(3) Team Member Experience.

i. Years: 3

ii. Subject Matter Expertise: Environmental Sciences

iii. Degree: M.S. or B.S.

iv. Professional Affiliations: Professional Engineer's or Geologist's Registration preferred, but not necessary

v. Phase One Experience: 2 years of experience, within the last 3 years.

(4) Indemnification and Insurance. The contractor shall:

i. Be willing to indemnify the FAA for the results of its professional and other negligence.

ii. Possesses a minimum limitation of liability to $1 million.

iii. Carry limits of errors and omissions insurance of at least $1 million.

iv. Carry limits of general liability insurance of at least $1 million.

v. Carry workers compensation insurance.

vi. Provide certificates of insurance (evidencing coverage) for each of the coverages.

(5) Conflicts of Interest. Consultants shall not have greater than 50 percent of their work coming from developers or real estate leasing groups, the Environmental Protection Agency, or State environmental agencies.

(6) Report Quality.

i. Report experience should show a similar approach to conducting Phase One EDDA's as outlined in the FAA protocol.

ii. Reports should be readable and comprehensible by the lay person.

iii. Reports should explain all conclusions and explain the relevancy and implication of findings to the FAA. Regulatory and some legal issues also should be explained.

(7) Size of the Firm. The contractor shall have in place adequate staff to conduct three EDDA's concurrently in different areas of the region, at the same time it is conducting a Phase Two EDDA. It is anticipated that each Phase One EDDA will require 1.5 junior staff and 1 senior/project management staff during the course of the Phase One EDDA.

(8) Client Experience. The contractor shall have some experience in working with Government agencies, although it does not need to be 100 percent of its experience.

(9) Location. While the primary contractor shall be easily accessible to the group reviewing the Phase One EDDA, to minimize costs, the contractor shall also have staff in the areas likely to be the locations of properties to be acquired or disposed.

(10) Information Protection. The contractor shall have in place a program for ensuring the confidentiality of information provided by the Government. Elements shall include specific standards for labeling information as proprietary and policies for protection of the information, including disciplinary procedures for employees found infringing upon the policy. The contract between the FAA and the contractor must provide that the contractor shall not disclose information obtained from the FAA or related to its relationship with the FAA to third parties without the express consent of the FAA.

(11) Cost. Cost shall be reasonable and within the prevailing rates charged by similarly situated contractors.

(12) Minority/Woman-Owned Business. The FAA, as well as other Federal agencies, are committed to hiring minority or woman-owned businesses, where all technical qualifications are met.

c. Evaluation and Balancing. The following factors shall be considered:

(1) Primary Criteria.

i. Firm and individual consultant experience (years)

ii. Firm and individual consultant expertise (education, work experience)

iii. Insurance and indemnification

iv. Report quality

v. Conflict of interest

(2) Secondary Criteria.

i. Location

ii. Size

iii. Confidentiality and document retention programs.

(3) Additional Criteria to be Considered

i. Use of subcontractors

ii. Formal quality control programs

iii. Cost

iv. Minority/woman-owned business status.

2. Phase Two And Three EDDA Contractor Procurement Specifications

a. General. Phase Two and Three EDDA's are considerably site-specific. Therefore, it is impracticable to prepare specific, minimum contractor specifications for the conduct of these activities. However, like the procurement process for Phase One EDDA's, when selecting a contractor to assist the FAA in performing Phase Two or Three EDDA's the service initiating the EDDA shall consider the following general requirements:

- An explicit scope of work shall be included as part of the request for proposals (RFP) and contract.

- Interviews shall be conducted with the contractors who meet the standard RFP criteria (including the specific individuals who will be doing the work.)

- A recent work product on a related activity shall be reviewed as part of the proposal process.

- All professional references shall be thoroughly verified.

b. Criteria. As stated in paragraph 1 above, the site-specific nature of the Phase Two and Three EDDA's precludes the issuance of detailed procurement specifications. The following general criteria shall be used when evaluating the potential Phase Two and Three EDDA contractors.

(1) Firm Experience

i.. Years: 10 (total, all activities)

ii. Subject Matter Expertise:

- Environmental science and engineering including, but not limited to, the following disciplines: hazardous site remediation, toxicology, risk assessment, chemistry, geology, hydrogeology, asbestos, hazardous materials management, and industrial hygiene. Regulatory expertise also shall be required.

- 5 years of experience in conducting Phase Two and Phase Three EDDA's, or related activities.

(2) Project Manager Experience.

i. Years: 10

ii. Subject Matter Expertise: Environmental Sciences

iii. Degree: M.S. or Ph.D.

iv. Professional Affiliations: Professional Engineer's or Geologist's Registration

v. Phase Two/Three Experience: 4 years of experience within the last 6 years.

(3) Team Member Experience.

i. Years: 5

ii. Subject Matter Expertise: Environmental Sciences

iii. Degree: M.S. or B.S. with 3 years of experience

iv. Professional Affiliations: Professional Engineer's or Geologist's Registration preferred, but not necessary

v. Phase Two/Three Experience: 2 years of experience within the last 3 years.

(4) Indemnification, Insurance, and Bonding. Insurance and bonding are highly dependent upon the nature and scope of the work to be performed. It is therefore not practical to provide specific levels of coverage. Generally, the contractor shall:

- Be willing to indemnify the FAA for the results of its professional and other negligence
- Possess adequate bonding, including bid bonding, performance bonding, and payment bonding
- Carry limits of errors and omissions insurance
- Carry limits of general liability insurance
- Carry workers compensation insurance
- Provide certificates of insurance (evidencing coverage) for each of the coverages.

(5) Conflicts of Interest. Consultants shall not have greater than 50 percent of their work coming from developers or real estate leasing groups, the Environmental Protection Agency, or State environmental agencies.

(6) Report Quality.

i. Report experience should show a similar approach to conducting Phase Two and Three EDDA's as outlined in the FAA protocol.

ii. Reports should be readable and comprehensible by the lay person.

iii. Reports should explain all conclusions and explain the relevancy and implication of findings to the FAA. Regulatory and some legal issues also should be explained.

(7) Size of the Firm. The contractor shall have demonstrated capabilities to adequately staff and conduct two Phase Two EDDA's and one Phase Three EDDA concurrently in different areas of the same FAA region.

(8) Client Experience. The contractor shall have some experience in working with Government agencies, although it does not need to be 100 percent of their experience.

(9) Location. While the primary contractor shall be easily accessible to the FAA group reviewing the Phase Two and Three EDDA reports, to minimize costs, the contractor shall also have staff in the areas likely to be the location of cleanup activities.

(10) Information Protection. The contractor shall have in place a program for ensuring the confidentiality of information provided by the Government. Elements shall include specific standards for labeling information as proprietary and policies for protection of the information, including disciplinary procedures for employees found infringing upon the policy. The contract between the FAA and the contractor must provide that the contractor shall not disclose information obtained from the FAA or related to its relationship with the FAA to third parties without the express consent of the FAA.

(11) Cost. Cost shall be reasonable and within the prevailing rates charged by similarly situated contractors.

(12) Minority/Woman-Owned Business. The FAA, as well as other Federal agencies, are committed to hiring minority or woman-owned businesses, where all technical qualifications are met.

c. Evaluation and Balancing. The following factors shall be considered:

(1) Primary Criteria.

i. Firm and individual consultant experience (years)

ii. Firm and individual consultant expertise (education, work experience)

iii. Insurance and indemnification

iv. Report quality

v. Use and quality of subcontractors

vi. Conflict of interest.

(2) Secondary Criteria.

i. Location

ii. Size

iii. Confidentiality and document retention programs.

(3) Additional Criteria to be Considered.

i. Formal quality control programs

ii. Cost

iii. Minority/woman-owned business status

3. Sample Contract Language.

The following sample contract language for Phase One EDDA's has been provided by AGL. The language in this contract has not been formally approved by AEE for use in procuring contractor support for the conduct of Phase One EDDA's.

APPENDIX 6. SAMPLING AND ANALYSIS PLAN

Sampling is the physical collection of a representative portion of an environment. The purpose of a sample and analysis plan is to document that all appropriate steps have been taken to ensure that a sample's original physical and chemical characteristics have been preserved during the transportation and testing process and to outline the methodology, sampling sites, types and numbers of samples required, the proper sample containers to be used, etc. The plan shall have the following elements.

a. The sampling objectives must be clearly delineated in advance because they will dictate many of the subsequent choices of methodology, sampling sites, types and number of samples required, proper sample containers to be used, etc.

b. The choice of materials to be sampled shall be guided by the results of the Phase One EDDA. Chemicals or other potentially hazardous materials that are known to exist, or were at one time present at the facility or adjacent facilities, shall be sampled.

c. The types of field samples to be taken during the Phase Two EDDA may include the following:

(1) A grab sample is a discrete sample that is collected at one point in time. It is representative of only one specific site at a specific time, as such, it is best used if the source of contamination is likely to be stable over a period of time and/or geographical area.

(2) A composite sample is a non-discrete sample composed of more than one specific sample collected at various sampling sites and/or times, combined and treated as one. Composite samples may give an average concentration or composition.

d. The quality assurance samples must also be taken to ensure and document the integrity of all samples gathered at the site. Quality assurance samples include:

(1) Duplicate samples, where two samples are collected at the same time from the same location. The analysis of duplicate samples using the same procedure and instrument provides an indication of analytical variability and error.

(2) Split samples, where a sample is divided into equal portions and analyzed by another accepted analytical technique or qualified laboratory in order to compare results.

(3) Spiked samples, where a known quantity of the contaminant is added to a sample at known concentrations to determine the accuracy of the analytical method.

(4) Blank samples, where a sample of distilled, de-ionized, contaminant-free water is collected, containerized, treated, and handled in the same manner as the samples. Blanks are used as an indicator of sample contamination throughout the entire process.

e. Sampling locations shall be as near as possible to areas of concern. Sampling locations also shall be based on the hydrogeologic characteristics of the site (see (g) below). The number of samples taken can be an indicator of the validity of the information. The frequency of sampling will be particularly important in determining the validity of information, particularly in the case of surface and ground water sampling.

f. Collection and handling methods shall provide a description of the practices to be used to ensure that samples are not contaminated or otherwise compromised during the sampling, transportation, and analytical process.

g. Topographic, geologic, and hydrologic characteristics of the site shall provide information on the potential for significant impact of contamination on surface and ground water.

h. Area geographic, flora, and fauna demographic information will help decisionmakers determine whether any contamination may impact flora, fauna, and humans in the area.

i. Information regarding the physical properties and hazardous characteristics of the materials involved will allow decisionmakers to determine the potential impact on human health and natural resources of any contamination found in the area.

j. The selected laboratory shall be qualified by the FAA's contractor. Considerations in the selection of a qualified laboratory are:

(1) Location. Laboratories located near to the subject property may be ideal because of fast response, reduced travel time, and reduced sample handling.

(2) Equipment. The laboratory must have the appropriate equipment to handle the types of samples to be taken at the property. Equipment commonly found in laboratory facilities include Inductively Coupled Plasma (ICP), Atomic Absorption (AA) for inorganics, and Gas Chromatography/Mass Spectroscopy (GC/MS) for organics.

(3) Personnel. The personnel shall be well-trained and experienced in the analysis of the types of samples to be taken at the site.

(4) Standard operating procedures. The laboratory shall have a comprehensive, well-established set of standard operating procedures (SOP). The SOP's shall consider analytical protocol, sample handling, documentation procedures, laboratory safety, laboratory, and quality assurance/quality control (QA/QC).

(5) The following shall be considered in the selection of an analytical laboratory:

- Soil and water samples. Use EPA contract laboratories, whenever possible. If not possible, ensure that the laboratory is validated by the U.S. Army Corps of Engineers' Hazardous, Toxic, and Radiological Waste (HTRW) Branch. EPA method SW-846 shall be used for solid wastes. Water samples shall be analyzed under EPA methods 500 series or 600 series.

- Air samples. Use a laboratory that successfully participates in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) program for air samples or organics, metals, asbestos with polarized light microscopy (PLM). For air samples with transmission electron microscopy (TEM), use laboratories accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP). These procedures meet current requirements for analytical integrity. Air samples are analyzed under OSHA and NIOSH methods; asbestos air samples analyzed under TEM should use the EPA method found in Subpart A of 40 CFR 363.

- Asbestos bulk samples. Use a laboratory that is accredited under NIST NVLAP for asbestos bulk samples. EPA has issued an interim method for analyzing insulation samples; this method should be referenced.

k. QA/QC procedures are multi-faceted procedures geared to ensure analytical accuracy through strict handling and documentation protocols. QA/QC analyses shall comply with the QA/QC procedures outlined in Test Methods for Evaluating Solid Waste SW-846 (third edition). Items to be included in the plan include the QA/QC samples and instrument tuning and calibration procedures. The QA/QC procedures for SW-846 are too

voluminous to be included in this order. However, SW-846 is a Government document that can be obtained from the National Technical Information Service (NTIS).

l. Sampling preservation techniques include measures to prevent compounds from degrading or transforming, the selection of proper container type (as certain types of containers can interfere with the sample itself), and storage techniques.

m. A health and safety plan shall be developed and included in the sampling and analysis plan.

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8.4 Other Field Activities

APPENDIX 8. PHASE THREE COST ESTIMATING AID

The automated Phase Three Cost Estimating Aid is available on floppy disk, upon request from the Office of Environment and Energy. Please contact a representative of the Special Projects and Hazardous Materials Group (AEE-20) at (202) 267-3497 to receive a copy of the software.

The following is a sample of the type of output generated by the mode.

Soil Remediation

Contaminant Class	**Mark With An '✖' Those That Apply**
Halogenated Hydrocarbons	
Semi-Volatile Organic Compounds	✖
Volatile Organic Compounds	
Metals & Inorganics	✖

Remediation Method (choose only one!)		**Cost Per Cubic Yard**
Fixation/Stabilization/Solidification		$325
Incineration/Thermal Treatment	✖	$850
Containment/Capping/Slurry Wall		$175
Excavation and Off-site Disposal		$450
Bioremediation		$375
Soil Venting		$450
Soil Washing		$450
Dehalogenation		$500

Volume of Material To Be Treated (in cubic yards) **80**

Potential Conflicts

Cannot Burn Metals

Soil Remediation Cost

Fixation/Stabilization/Solidification	
Incineration/Thermal Treatment	$68,000
Containment/Capping/Slurry Wall	
Excavation and Off-site Disposal	
Bioremediation	
Soil Venting	
Soil Washing	
Dehalogenation	

Ground Water Remediation

Contaminant Class	Mark With An '✖' Those That Apply
Halogenated Hydrocarbons	
Semi-Volatile Organic Compounds	✖
Volatile Organic Compounds	
Metals & Inorganics	✖

Remediation Method (choose only one!)		Cost Per Acre Foot
Containment/Slurry Wall		$ 24
Pump and Treat	✖	$32,500
Bioremediation		$47,500

Volume Of Material To Be Treated (in acre feet) **40**

Potential Conflicts

Ground Water Remediation Cost **$1,300,000**

APPENDIX 9. TREATMENT TECHNOLOGIES

a. Soil, Sediment, and Debris Treatment Technologies

(1) Many technologies are available for the cleanup of hazardous waste sites. These technologies, described below, have been divided into categories based on the method of treatment and the media the technology treats. The following guidelines shall be adhered to when reviewing the treatment selection process.

(2) Incineration/Thermal Treatment uses heat to concentrate or alter the composition of the contamination. This method shall not be used to destroy metal contaminated wastes. Incineration is effective in treating organic wastes, but is expensive.

(3) Containment/Capping/Slurry Wall isolates the wastes and prevents migration. This remedial solution is not recommended because it does not involve treatment or significant hazard reduction.

(4) Excavation and Off-site Disposal involves digging up the contaminated material and transporting it offsite for disposal in an approved facility. Limited landfill capacity and the Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions have made this an increasingly expensive option.

(5) Bioremediation uses microorganisms to consume and render the waste less hazardous. The process is limited by several factors, including time and ineffectiveness against some wastes, including metals. However, this technology is inexpensive and gaining public acceptance.

(6) Soil Venting is a process of drawing air through wells drilled into the soil and passing that air through a treatment system. The process shall only be used for wastes contaminated with volatile organics. Soil venting is inexpensive to install and very effective when used in situations involving volatile organic compounds.

(7) Soil Washing involves passing a washing solution through contaminated soil or through excavated material. The solution is then treated and the excavated soil is returned to the excavation site. This process is effective in treating most contamination, but is expensive and time consuming to install for small quantities.

(8) Dehalogenation is the process of passing excavating material through a glycol solution to render materials less hazardous. The solution is then treated and the excavated soil is returned to the excavation site. The process is only effective for treating chlorinated hydrocarbons, such as pesticides and herbicides. This technology is expensive and time consuming.

b. Ground Water Treatment Technology

- Pump and Treatment of contaminated ground water involves installing wells and pumps to retrieve contaminated ground water, treating the ground water (typically by air stripping and/or carbon adsorption) and re-injection of the de-contaminated ground water. This technology is relatively expensive to implement.

APPENDIX 10. FAA EDDA RESPONSIBILITIES